Amendments To the Claims:

1.-6. (cancelled)

7. (currently amended) A method of allocating station addresses to communication users arranged in a bus system, wherein communication on the bus system is organized in communication cycles, and

a first communication user on the bus assigned a controlling role as a manager and having a database comprising a list of each possible station of the bus and a current allocation for each station address as either a communication user or a non-occupied station address is configured to:

autonomously transmit data to all station addresses on the bus system,

allocate data to a each station address in the database, the data uniquely identifying a further communication user, or characterize the station address as not allocated, the method comprising the following steps to be executed in one communication cycle:

transmitting in a first communication cycle, by a first communication user on the bus, to all station addresses on the bus:

(a) a first broadcast request comprising a list of currently non-occupied station addresses from the database of the first communication user so that all other users on the bus can save the list of currently non-occupied station addresses; and

(b) a first new agent request to all station addresses on the bus requesting a new agent response, wherein:

(i) for each non-responsive station address in which no response is received, the current allocation is updated to non-occupied in the database, and

(ii) for each responsive station address in which a response comprising data uniquely indentifying the agent at that station address is received, the current allocation is updated to a communication user and the data uniquely indentifying the agent at that address is recorded in the database;

transmitting in a second communication cycle, by the manager:

(a) a second broadcast request to all station addresses on the bus comprising the list of currently non-occupied station addresses from the database of the first

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communication user as updated in the first communication cycle so that all other users on the bus can save the list of currently non-occupied station addresses; and

(b) a second new agent request addressed to each responsive station address on the bus comprising

(i) the data uniquely identifying the agent at that station address as recorded in the database as confirmation, thereby assuring the communication user at that station address of correct identification by the manager, and

(ii) the data uniquely identifying the agent at each responsive station address as recorded in the database, thereby allowing communications among communication users by correct identification

transmitting a first data packet to each station address by the first communication user, the first data packet including data allocated to the respective station address, the data uniquely identifying the respective further communication user;

transmitting a second data packet to the first communication user by at least one of the further communication users, the second data packet including the station address and data uniquely identifying the at least one further communication user;

allocating the data uniquely identifying the at least one further communication user to the station address of the at least one further communication user, by the first communication user; and

transmitting a third data packet to all communication users different from the first communication user, by the first communication user, the third data packet including information about which of the station addresses are characterized as not allocated, wherein such communication user which has already transmitted the second data package uniquely identifying such communication user in a previous communication cycle and which will receive the first data package in a subsequent communication cycle, the first data package then having data not uniquely identifying such communication user, automatically changes its station address to correspond to one of the station addresses characterized as not allocated, based on the third data packet.

8. (previously presented) The method according to claim 7, wherein the communication cycles have a variable cycle time.

9. (currently amended) The method according to claim 7, further comprising:

storing device information comprising data uniquely indentifying the agent about the at least one further communication user in a memory device assigned to the at least one further communication user;

accessing the stored device information via the bus system by the first communication user; and

reading the stored device information by the first communication user.

10. (previously presented) The method according to claim 9, further comprising automatically configuring the bus system by repeating the method steps.

11. (currently amended) A communication user in a bus system adapted to perform the steps of claim 7. having station addresses, comprising an allocation mechanism configured to allocate data uniquely identifying a further communication user to at least one station address of the bus system and to characterize at least a further station address as not allocated.

12. (currently amended) A communication user in a bus system adapted to perform the steps of claim 18 having station addresses, comprising:

a transmission mechanism for transmitting a second data packet to a first communication user, the second data packet including data uniquely identifying the communication user; and

an address mechanism for automatically changing a current station address of the communication user.

13. (new) The method of allocating station addresses of claim 7 further comprising the first new agent request of the first communication cycle (iii) for each non-agent responsive station address in which the response is received but does not comprise data uniquely identifying the agent at that station address, the current allocation in the database for that station address is updated to a communication user without agent functionality, providing for communications with the communication user at that non-agent responsive station address without unique identification.

14. (new) The method of allocating station addresses of claim 13 further comprising in the first new agent request of the first communication cycle (iv) for each conflicting station address, having more than one agent allocated thereto, no response is received, and the current allocation is updated to non-occupied in the database, so that the transmission by the manager during the second cycle identifying the conflicting station address as non-occupied signals the more than one agent allocated to the conflicting station address of the conflict so that the more than one agent allocated to the conflicting station address can automatically select a new station address from the list of currently non-occupied station addresses.

15. (new) The method of allocating station addresses of claim 7 wherein the second new agent request comprises a data packet wherein a section of the data packet includes the data uniquely identifying the agent at each responsive station address.

16. (new) The method of claim 15 wherein the data uniquely identifying the agent comprises component data or a serial number or both.

17. (new) The method of allocating station addresses of claim 7 wherein the broadcast request comprises a data packet wherein a section of the data packet includes list of currently non-occupied station addresses.

18. (New) A method of allocating station addresses to communication users arranged in a bus system that requires unique stations addresses for communication users to be able to communicate with one another, wherein communication on the bus system is organized in communication cycles, comprising:

transmitting in a first communication cycle, by a first communication user on the bus assigned a controlling role as a manager and having a database comprising a list of each possible station of the bus and a current allocation for each station address as either a communication user or a non-occupied station address, to all station addresses on the bus:

(a) a first broadcast request comprising a list of currently non-occupied station addresses from the database of the first communication user so that all other users on the bus can save the list of currently non-occupied station addresses; and

(b) a first new agent request to all station addresses on the bus requesting a new agent response, wherein:

(i) for each non-responsive station address in which no response is received, the current allocation is updated to non-occupied in the database, and

(ii) for each responsive station address in which a response comprising data uniquely indentifying the agent at that station address is received, the current allocation is updated to a communication user and the data uniquely indentifying the agent at that address is recorded in the database;

transmitting in a second communication cycle, by the manager:

(a) a second broadcast request to all station addresses on the bus comprising the list of currently non-occupied station addresses from the database of the first communication user as updated in the first communication cycle so that all other users on the bus can save the list of currently non-occupied station addresses; and

(b) a second new agent request addressed to each responsive station address on the bus comprising

(i) the data uniquely identifying the agent at that station address as recorded in the database as confirmation, thereby assuring the communication user at that station address of correct identification by the manager, and

(ii) the data uniquely identifying the agent at each responsive station address as recorded in the database, thereby allowing communications among communication users by correct identification.

19. (new) The method of allocating station addresses to communication users of claim 18 further comprising in the first new agent request of the first communication cycle (iii) for each non-agent responsive station address in which the response is received but does not comprise data uniquely identifying the agent at that station address, the current allocation in the database for that station address is updated to a communication user without agent functionality, providing for communications with the communication user at that non-agent responsive station address without unique identification.

20. (new) The method of allocating station addresses to communication users of claim 19 further comprising in the first new agent request of the first communication cycle (iv) for each conflicting station address, having more than one agent allocated thereto, no response is received, and the current allocation is updated to non-occupied in the database, so that the transmission by the manager during the second cycle identifying the conflicting station address as non-occupied signals the more than one agent allocated to the conflicting station address of the conflict so that the more than one agent allocated to the conflicting station address can automatically select a new station address from the list of currently non-occupied station addresses.

21. (new) The method of allocating station addresses of claim 18 wherein the second new agent request comprises a data packet wherein a section of the data packet includes the data uniquely identifying the agent at each responsive station address.

22. (new) The method of claim 21 wherein the data uniquely identifying the agent comprises component data or a serial number or both.

23. (new) The method of allocating station addresses of claim 18 wherein the broadcast request comprises a data packet wherein a section of the data packet includes list of currently non-occupied station addresses.